



ELECTRICAL CURRENTS

Newsletter from the Office of the Chief Electrical Inspector

Ron Fuller, Chief Electrical Inspector

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● Public Hearing For Interim Rule Revisions

The department has initiated an interim rule revision cycle to expand Class A and Class B basic electrical work to help accommodate the business needs of our customers and to better utilize our inspection resources. The revisions also clarify limitations of electrical specialties allowed to do incidental plumbing connections. These proposed revisions have a target effective date of November 18, 2005. Proposed revisions can be viewed at: <http://www.lni.wa.gov/TradesLicensing/Electrical/LawRulePol/RuleDev/>.

Copies of the proposed rules will also be available at the **public hearing on September 27, 2005, at 9:00 AM; Labor and Industries Building, Room S119/S118; 7273 Linderson Way, Tumwater**. If you are unable to attend, we must receive written, E-mailed, or faxed comments no later than 5:00 PM on September 27, 2005. This address is: Specialty Compliance Services Division, Attention Sally Elliott, PO Box 44400, Olympia, WA 98504-4400; E-mail: yous235@lni.wa.gov; Fax: (360) 902-5292.

● We Are Recruiting for Electrical Inspectors, Leads, Supervisors, and Electrical Compliance Officers

A recruitment notice has been mailed to all qualified journeyman electricians in Washington and posted on several national recruitment websites for the positions of Electrical Inspector, Inspector Lead, Supervisor, and Fraud Team. To apply for these positions, complete go to:

<http://www.lni.wa.gov/Main/FindAJob/default.asp>

There is an immediate need for lead level Fraud Team members performing electrical job site compliance, database investigations, and developing relationship networks for the L&I fraud prevention initiative. Fraud Team members will be hired at the lead level (\$4,460 - \$5,175 month, Range 60E).

Anyone interested in applying for the other recruited positions should submit an application as soon as possible. This is your chance to make a difference in the electrical industry. Washington has excellent career opportunities, benefits, and a stable work environment. We welcome your applications. If you have any specific questions, please email them to: Jobs@lni.wa.gov

● Field Cutting Of Rope Lights, Not Allowed

Flexible lighting systems intended for decorative lighting, outline lighting and similar installations were introduced as an alternative to traditional incandescent lighting more than 30 years ago. The flexible lighting system, better known as rope lights, was manufactured to a standard that allowed for the cutting and termination custom lengths in the field. The standard allowed this with the intention it would be done by an electrician or qualified person. Increased popularity with homeowners and do-it yourselves resulted in product failures and safety problems, so the ANSI/UL Standard for Flexible Lighting Products—UL 2388 was updated.

The revised standard was effective November 3, 2003. A significant change in the standard is the prohibition of lamp shunts and the cutting of the rope light in the field. In addition, flexible lighting products cannot be permanently secured to a building or similar structure. Rope lights manufactured before November 3, 2003 may still be installed per the original manufacturer's instructions to allow field cutting, but it is unlikely that stock from 2003 is still available. If you are using the rescinded installation methods, you should be prepared to document the date of manufacture of the flexible lighting product and provide a copy of the manufacturer's installation instructions.

● NM Cable Must Be Installed In A Dry Environment

Article 334.10(A) of the National Electrical Code allows the use of type NM cable "For both exposed and concealed work in normally dry locations". NEC 334.12(B)(4) specifically prohibits the use of type NM cable "Where subject to excessive moisture or dampness".

When subject to rain in the construction environment, water during fire-fighting operations, or flooding, does non-metallic sheathed cable (type NM) need to be replaced following exposure to water?

The 2001 National Electrical Manufacturers Association (NEMA) publication Guidelines for Handling Water Damaged Electrical Equipment says, "Any wire or cable that is listed for dry locations only, such as type NM-B cable, should be replaced if it has been exposed to water. Any cable that contains fillers, such as polypropylene, paper, etc., should be replaced if the ends of the product have been exposed to water. When any wire or cable product is exposed to water, any metallic component (such as the conductor, metallic shield, or armor) is subject to corrosion that can damage the component itself and/or cause termination failures."

When a Type NM-B cable end has been exposed to water, water is wicked into the jacket of the cable. Wire and cable that is listed only for dry locations may become a shock hazard, when energized, after being exposed to water. On a case by case basis, we will consider these NEMA guidelines as manufacturer's installation instructions when making decisions that may require cable replacement.

● **Ensure Equipment Can Be Approved For Use And Do It Early In The Job Schedule.**

WAC 296-46B-010 (9) states, "In order to meet the minimum electrical safety standards for installations, all materials, devices, appliances, and equipment, not exempted in chapter 19.28 RCW, must conform to applicable standards recognized by the department, be listed, or field evaluated." And, "... equipment must not be energized until such standards are met unless specific permission has been granted by the chief electrical inspector." Contractors often fail to inform their customers of this requirement until the job is nearly completed, or they let the inspector give the "bad news" to the customer when the equipment is placed. Always research the equipment a customer intends to use prior to the installation and avoid costly evaluations and delays.

If equipment is not properly listed and labeled, then it must be field evaluated. Qualified industrial equipment, WAC 296-46B-030(1), is eligible for department evaluation. The department evaluation process is detailed in WAC 296-46B-030(2) and requires specific documentation of the manufacturing standards and intended use from the equipment manufacturer and equipment owner. For additional information on department evaluations you may contact David Myers at (360) 902-5967. Accredited testing laboratories are shown at: <http://www.lni.wa.gov/TradesLicensing/Electrical/ProdTest/>

● **Wiring Methods In Health Care Facilities And Patient Care Areas**

NEC 517.13 requires specific wiring methods for patient care areas (i.e. insulated copper conductor, metal raceway, hospital grade MC, or AC cables, etc.). The governing body of a facility must designate these areas in accordance with the type of patient care anticipated to be provided in the facility. WAC 296-46B-010(14)(c) refers to health or personal care occupancies in buildings or parts of buildings that are likely to contain "patient care areas" in which patients, who may be unable to provide for their own needs and safety without the assistance of another person, are treated. These individuals may come in contact with ordinary electrical appliances, connected to electro-medical devices, or subjected to invasive procedures.

It was not the intent of the NEC Code Panel 15 to include such facilities as gymnasiums or health clubs in the scope of NEC Article 517. If there is some question as to whether a facility is a "health care facility" with "patient care areas", then the governing body of the facility is responsible for the designation of these areas. This should be done in consultation with medical and engineering staff taking into consideration the conditions and practices of the facility. While this places responsibility on the facility, it also provides the facility with an opportunity to safeguard its own operations, rather than leaving designations to an outside agency. If the health or personal care status of a facility is questioned, the governing body may be asked to provide documentation stating the anticipated and intended care or services to be provided.

● **Electrical Question of the Month**

This Month's Question: Type THW copper conductors for a 3-wire, single phase dwelling service rated at 100 amperes shall not be less than: **A) 6 AWG B) 4 AWG C) 3 AWG D) 2 AWG**

Last Month's Question: A raceway is installed through an area with an ambient temperature of 46 degrees Celsius. The raceway contains the following circuits, nine current carrying conductors and an equipment grounding conductor. The conductors are all #10 THW copper. What is the allowable ampacity for these conductors? **A) 13.1 amps, B) 17.5 amps, C) 18.4 amps, D) 24.5 amps**
The answer is: **C)** [NEC Table 310.16, #10 THW copper = 35 amps, 46°C ambient = .75 factor; NEC Table 310.15(B)(2)(a), 9 current carrying conductors = .70 factor; 35 amps X .75 X .70 = 18.4 amps]